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(54) Title: METHOD FOR PREPARING ADJUSTABLY BIORESORBABLE SOL-GEL DERIVED SiO<sub>2</sub>

(57) Abstract: The present invention relates to a method for preparing a sol-gel derived SiO<sub>2</sub> with a very fast bioresorption rate wherein a sol-gel derived SiO<sub>2</sub> is prepared from a sol comprising water, an alkoxide or inorganic silicate and a lower alcohol using a mineral acid or a base as a catalyst and said sol is aged and dried. Characteristic for the method is that pH is from 1.5 to 2.5, molar ratio of water to the alkoxide or inorganic silicate is 0.5 to 2.5, of alcohol to the alkoxide or inorganic silicate is ≥ 0.5; and the sol is either let to gel without induced changes of composition and without forced drying of the sol, or a change of composition are induced; and within a time of ≤ 30 minutes, from the induced change forced drying of the sol is carried out or initiated. The present invention also relates to a method for adjusting the bioresorption rate of sol-gel derived SiO<sub>2</sub>. Characteristic for the adjusting method is that a SiO<sub>2</sub> with a very fast bioresorption rate is obtained according to the method referred to above; and a SiO<sub>2</sub> with a slower bioresorption rate than the fastest bioresorption rate is obtained by deviating any of the parameters: pH, molar ratio of water to the alkoxide or inorganic silicate and/or molar ratio of alcohol to the alkoxide or inorganic silicate; carrying out induced changes by addition of a component or components and/or optional addition of the biologically active agent or agents, said changes affecting any of the values by not carrying out forced drying, or carrying out or initiating forced drying of the sol later; and/or deviating the temperature for letting the sol gel spontaneously. The invention further relates to bioresorbable sol-gel derived SiO<sub>2</sub> obtainable by the methods of the invention and to their use in administration of biologically active agents.



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